THE HANFORD SITE

Aging Structures Stabilization

Fact Sheet – May 2021

An offsite mock-up was constructed to test the tools and technology that will be used to stabilize three underground structures near the Plutonium Finishing Plant.

The U.S. Department of Energy is preparing to fill three underground liquid waste disposal structures with engineered grout to prevent their collapse and the potential to spread contamination. The grout will provide near-term protection of human health and the environment while not precluding future remedial or closure actions.

Background

Following the partial collapse of a waste storage tunnel near Hanford's Plutonium Uranium Extraction Plant in May 2017, the U.S. Department of Energy analyzed other older structures in Hanford's former plutonium production area (the Central Plateau) to determine if any other structures are at risk of collapsing.

In 2018, 27 structures that may need risk-mitigation work were identified, and in 2019, 11 of the structures were analyzed further. Further analysis and evaluation identified three underground liquid waste disposal structures that represented the highest risk, requiring stabilization to prevent a collapse and the potential to spread contamination.

Mission

Filling the structures with engineered grout will provide protection, while not precluding future remedial actions or final closure decisions. Grout has been used in other stabilization projects on the Hanford Site to expedite risk reduction. Planning for the stabilization work is underway for the structures located within the footprint of the former Plutonium Finishing Plant (PFP).

*216-Z-2 Crib**

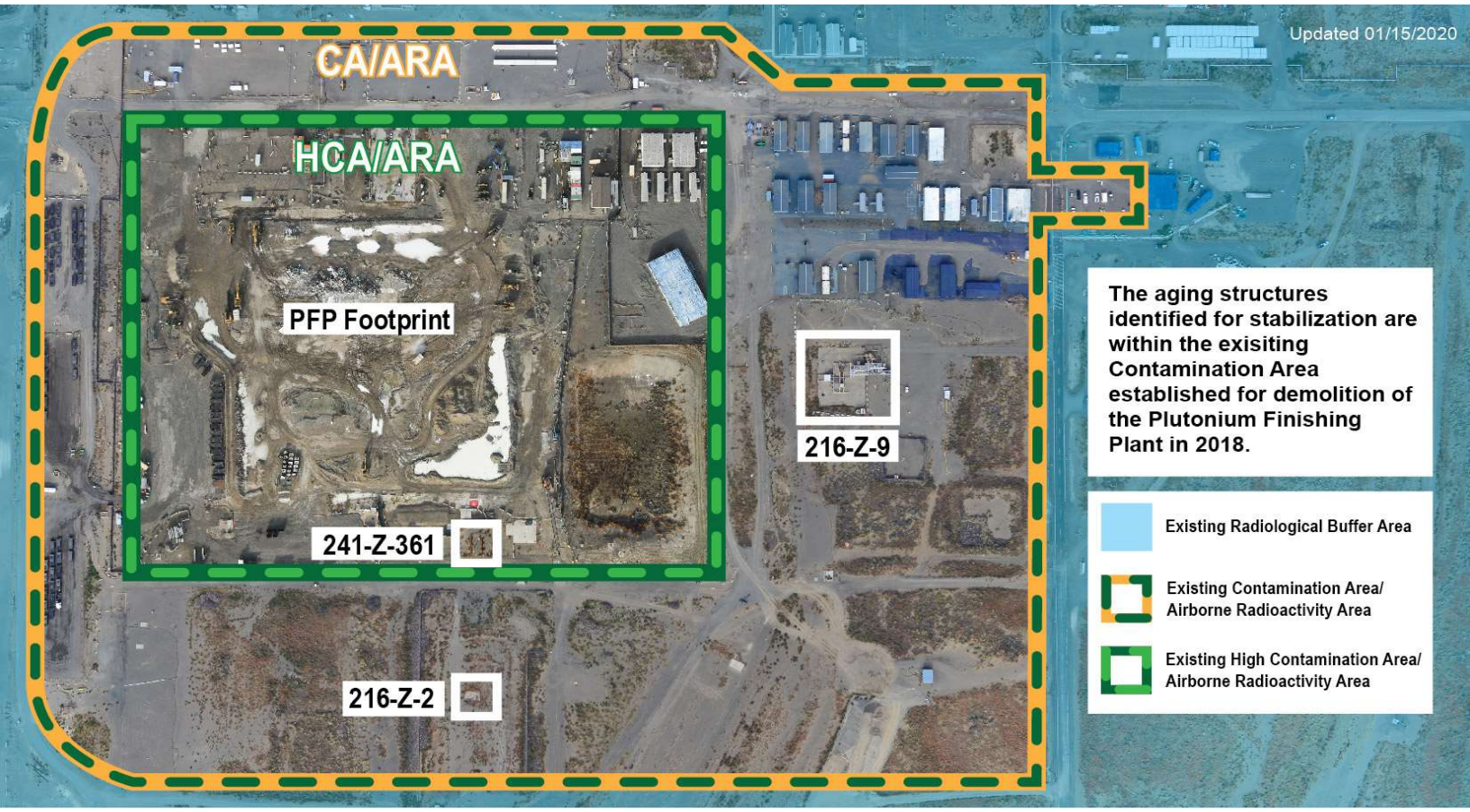
241-Z-361 Settling Tank

216-Z-9 Crib

The aging structures identified for stabilization are within the existing Contamination Area established during the demolition of the Plutonium Finishing Plant.

**This photo shows subsidence, which was later filled, above a structure similar to 216-Z-2.*

Aging Structure Stabilization (continued)



216-Z-2 Crib

Operations: 1949 to 1969

Size: Excavated to 14 feet square and 21 feet deep; a 12-foot-square, 14-foot-deep open-bottom wooden box was installed within the excavation for support

Waste Disposed of: Together with 16-Z-1, the cribs received about 10 million gallons of waste, mostly from the Plutonium Finishing Plant

Contamination: Estimated discharge to cribs includes 6.8 kg of plutonium

Estimated Grout Volume to Stabilize: Not Applicable

Completion: Additional assessments on the Z-2 crib demonstrate that the existing soil cover provides proper protection.

241-Z-361 Settling Tank

Operations: 1949 to 1973

Size: Reinforced concrete structure 28 feet long and 15 feet wide, with a 3/8-inch-thick steel liner

Waste Disposed of: Received liquid waste from the PFP complex, including the main processing facility and Plutonium Reclamation Facility

Contamination: An estimated 29 kg of plutonium remains in the tank

Grout Volume to Stabilize: 163 cubic yards

Completed: January 2021

216-Z-9 Crib

Operations: 1955 to 1962

Size: 20-foot-deep excavation (120 by 90 feet) sloping to a 60-by-30-foot floor, with a concrete cover supported by six concrete columns

Waste Disposed of: Received approximately 1 million gallons of process waste from PFP

Contamination: An estimated 48 kg of plutonium remains in the crib

Grout Volume to Stabilize: 3,957 cubic yards

Completed: January 2021